

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-5, 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Shimomura (US 2002/0051648).

Shimomura teaches:

Claim 1: adjusting a position at which one of said image carriers is irradiated with an optical beam of a laser light emitting element in a sub-scanning direction to correct said color shift while said optical beam is irradiated from said optical writing device onto said image carriers to develop the latent one-color images, said adjusting including, writing and developing a one-color pattern on said image carriers (para 224 lines 5-7 and fig 1 #10); transferring the one-color patterns developed on said image carriers onto the movable element to form a multi-color pattern on the movable element (fig 1 #2a-d drums); reading the multi-color pattern transferred onto the movable element and detecting the color shift among the developed one-color patterns from the read multi-color pattern with a color shift sensor (para 105 line 1); rotating the laser light emitting element, which is rotatably held by a holding member, about a rotational central axis of the holding member to move a laser light emitting position of the laser light emitting element in a sub-scanning direction with an optical axis of the optical beam being

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inclined with respect to the rotational central axis of the holding member, based on the result of the detected color shift obtained from the color shift sensor (fig 24 #182, para 224 lines 3-4); and substantially aligning the rotational central axis of the holding member with the optical axis of the optical beam at a point at which the optical beam is deflected off of a polygon mirror towards one of the image carriers (para 227 lines 2-3 and para 99 line 7).

Claim 3: setting a write timing at which said multi-color pattern is formed based on a timing at which a reference point provided on one of said image carriers is detected (para 21 line 28).

Claim 4: setting a write timing at which said multi-color pattern is formed based on a timing at which a reference point provided on the movable element is detected by the color shift sensor (abs lines 8-10 and para 21 line 28).

Claim 5: correcting a write timing at which said optical writing device writes an image (para 21 line 28); and correcting the position of the optical beam, wherein said correcting a writing timing and said correcting the position of the optical beam are executed concurrently (para 21 lines 25-28 indicates that upon correcting a writing time the position of the optical beam is concurrently corrected and further evidenced by line 15 of para 21).

Claim 37: an image forming device having one-color image carriers for forming images in different colors (fig 1 #10); a movable element configured to directly or indirectly receive the images formed by said image forming device (fig 1 #10); an optical writing apparatus including an optical writing device having a laser light emitting element

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configured to irradiate said image carriers with corresponding optical beams emitted from the laser light emitting element based on input image information and to form images in a plurality of colors (fig 1 #10, 2a-d are drums and 1a-d are the lasers); an adjusting device configured to adjust positions at which the optical beams are irradiated onto said image carriers by the optical writing device, such that the positions match when one-color images from said image carriers are superimposed (fig 24 #182); and a color shift amount detecting device configured to detect the amount of color shift based on a plurality of patterns in a plurality of colors formed on said movable element received from said one-color images of said image carriers by the optical writing device (para 105 line 1), wherein said adjusting device makes an adjustment, based on the amount of color shift detected by said color shift amount detecting device, to correct a color shift (abs lines 8-10 and para 21 line 15), said adjusting device includes a holding member configured to rotatably hold the laser light emitting element of the optical writing device and rotate the laser light emitting element about a rotational central axis of the holding member to move a laser light emitting position of the laser light emitting element in a sub-scanning direction with an optical axis of the optical beam being inclined with respect to the rotational central axis of the holding member, based on the result of the color shift detected by the color shift amount detecting device (fig 24 #182 holder and para 224 lines 5-7), and the rotational central axis of the holding member is substantially aligned with the optical axis of the optical beam at a point at which the optical beam is deflected off of a polygon mirror towards one of the image carriers (para 227 lines 2-3 and para 99 line 7).

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Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimomura (US 2002/0051648) in view of Tada (US 6,115,165).

Shimomura does not teach but Tada teaches:

Claim 6: said correcting the write timing includes correcting a portion corresponding to a quotient derived by dividing an amount of misregistration by a dot pitch, and said correcting the position of the optical beam includes correcting a portion corresponding to a residual resulting from the dividing of the amount of misregistration by the dot pitch (col 2 lines 55-57 "h is equal to a quotient (a natural number) obtained by dividing the interval r between the light beams by the interval P between the scanning lines").

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Shimomura to incorporate said correcting the write timing includes correcting a portion corresponding to a quotient derived by dividing an amount of misregistration by a dot pitch, and said correcting the position of the optical beam includes correcting a portion corresponding to a residual resulting from the dividing of the amount of misregistration by the dot pitch as taught by Tada in order to ensure the beam is positioned accurately when imaging and appropriately taking the error into account.

Response to Arguments

5. Applicant's arguments with respect to claims 1,3-6 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sarah Al-Hashimi whose telephone number is 571 272 7159. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on 571 272 2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/SA/

/Stephen D Meier/
Supervisory Patent Examiner, Art Unit 2853